

AMATEUR RADIO

MARCH

1949

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EDITORIAL



TECHNICAL PROGRESS.

N.B.F.M.

Federal Executive has, on your behalf, sought from Chief Inspector (Wireless) permission for Australian Amateurs to use Narrow Band Frequency Modulation on 3.5 and 27 Megacycle Bands. We feel that the time has arrived for amateur exploitation of the new field opened up by this technique, particularly on 3.5 M/c band, where B.C.I. debars many amateurs from making full use thereof. It is hoped that when this privilege is granted, the 3.5 M/c band will be completely reactivated and re-explored, for herein lies our most useful medium for maintaining close contact between Country and City Members.

N.B.F.M. standards recommended by the Federal Executive were outlined in the editorial for October, 1947.

F.I.A.T.S.

The Federal Ionospheric and Tropospheric Sub - Committee has, with the aid of Dr. A. L. Green and his staff at A.I.P.S. — to whom we are extremely grateful—succeeded in providing for the magazine each month, a series of very simple charts whereby the Amateur Operator may spend every minute on the air in sure contact with the desired Zone, instead of sitting wondering why the band is dead. The Sub-committee is now investigating the possibility of making these charts useful for our New Zealand friends. The next step

will be, with the co-operation of Divisional Councils, to establish Liaison Officers in each State who will correlate for official broadcasts, Short Term Corrections and Interstate Propagation Forecasts.

50 M/c BAND.

The advances made in Equipment, Aerial Systems and increasing knowledge of propagation characteristics has resulted in consistent contacts over distances which were once regarded as a rare accomplishment. Undoubtedly when F.I.A.T.S. can get into action on Tropospheric Forecasts present day records will be eclipsed with ease. Naturally we will always be indebted to sporadic E. and T.I. for abnormal ranges; but our Tropospheric Forecasts will enable us to take full advantage of the vagaries of nature.

144 M/c BAND.

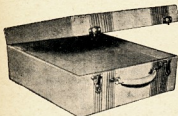
From a rickety start with the inevitable "Super-Regen" and "Wobulated Oscillator," we have in quick time reached the dizzy heights of "Double and Triple Conversion Super-Hets," and Multi-Stage Crystal Controlled Transmitters," with it we have developed a very blasé attitude and now regard this band more or less as the "Local Telephone Service"—In other words, it's time for the pioneers to move further afield to pastures new—So, why not follow the lead of those hardy members who are already blazing the trail on 576 M/cs.

—G.G.

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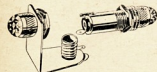
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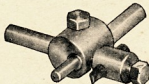
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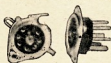
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Notes On Double Conversion Receiver Design

BY D. R. AYRE,* VK3KP

C. C. Waring's article on a double conversion receiver ("A.R.," June, 1948) should be read by all interested in this type of set. It is a most comprehensive description of a particular receiver, providing ample information on many phases of the design and construction of the type, and is therefore a considerable contribution to the literature relating to double conversion receivers. Little enough has been written about them in the past. The A.R.R.L. Handbook for 1944, for instance, contains a total of 10½ lines on the subject!

Although the writer proposes also to refer to a specific receiver, it is not so much for the purpose of providing a complete description together with constructional details, as to bring out several points of considerable interest and importance in the design of these receivers.

The receiver in question, which has proved most satisfactory at the writer's station, is shown in block diagram form in Fig. 1. It will be seen that the tube line-up is as follows:—

1st r.f.—6AK5
2nd r.f.—9003
1st mixer—9001
1st osc.—9002
High i.f.—6SK7
2nd mixer—6L7
2nd osc.—6J5
1st low i.f.—6SK7
2nd low i.f.—6SK7
Det., a.v.c., 1st audio—6R7
B.f.o.—6J5
Shunt noise limiter—6H6
Output—6K6

The high i.f. is 3830.7 Kc. (for reasons mentioned below), while the low i.f. is 455.0 Kc.

CHOICE OF INTERMEDIATE FREQUENCIES

It is well known that the primary reason for accepting the complexity of a double conversion receiver is to achieve satisfactory image ratios for the higher frequencies, say from 14 Mc. up, while retaining the desirable selectivity and gain of the conventional i.f. chan-

nel working on 455 Kc., 175 Kc., or even lower. 1600 Kc. is often adopted for the high i.f. This gives a fairly satisfactory image ratio on 28 Mc., as Waring points out, but leaves something to be desired at higher frequencies. True, 1600 Kc. i.f. transformers are available. The writer feels, however, that the slight additional expense involved in procuring special higher frequency transformers is a drop in the bucket when compared with the cost of the complete receiver. Somewhere in the range 3 to 6 Mc. would seem satisfactory, although v.h.f. requirements may warrant going up to 10 Mc. For the low i.f., the writer prefers 455 Kc. in conjunction with a crystal filter. The exact high i.f. chosen—3830.7 Kc.—was finally arrived at for reasons dealt with below.

SPIRIOUS SIGNALS

These are mentioned early in the article because they play a part in the selection of the frequency at which the second (fixed frequency) oscillator is to work, and hence, in the choice of the two intermediate frequencies—particularly the higher.

There are three common forms of spurious signal which can creep into the double conversion receiver (there are others, but they are either rare, or of the type found in a normal single conversion set; in either case, they are not considered here). The three forms are:—

- Harmonics of the second (fixed frequency) oscillator.
- Silent "carriers" caused by interaction between the first and second oscillators.
- Images due to oscillator harmonics.

Type (a) are readily understood. Suppose the second oscillator to be on 4000 Kc. Its harmonics will appear at 8, 12, 16, 20, 24, 28, 32 Mc., etc. They are the hardest of all the spurious signals to eliminate, because they are accepted by the input circuit of the first i.f. stage when it is tuned across them, and this stage is the most sensitive in the set. It is easy enough to suggest adequate decoupling of the second oscillator,

together with liberal shielding. It is, alas, very hard to get enough of either to suppress this type of spurious signal completely.

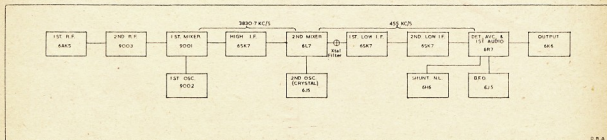
Unlike Waring, the writer sees little point in general coverage for a receiver of this type, and is interested only in Amateur band reception. One solution, therefore, is to pick a frequency for the second oscillator having harmonics which fall outside any band which it is intended to receive. The other—adopted by the writer—is to select a frequency whose harmonic coincides with the edge of a band, and acts as a marker. The second oscillator used is a low drift crystal type, and owing to the availability of a readily adjusted crystal, 4285.7 Kc. was chosen. The seventh harmonic of this frequency is 29999.9 Kc., which marks the h.f. end of the ten metre band. Other, and better, alternatives will suggest themselves—3500 Kc. for instance, which will mark the i.f. edges of 80, 40, 20, and 10.

Spurious signals of type (b) will surely appear in any but the best designed sets when they are first switched on and given a preliminary line up. They are caused by the fundamentals or harmonics of the two oscillators beating together to produce silent "carriers" which are picked up by the input circuit of the high i.f. stage or (this is less usual) by the input circuit of the first low i.f. stage. They are alarming when first noticed, as they appear closely spaced all over the dial. The reason for their multiplicity lies in the fact that even high order harmonics can be responsible. The writer, at one stage in the development of the receiver referred to, tracked down a few that were coming from harmonics of the order of 40th to 50th.

Fortunately, the input to the i.f. channels—especially the low i.f.—has to be higher than that at the first i.f. stage to produce the same effect. This is all to the good. The solution must be found; it will vary with each receiver and with different set-ups of a given receiver, but basically will comprise complete, elaborate shielding of one or both oscillators, and careful decoupling

(Continued on Page 10)

* 65 Kenmare Street, North Box Hill, E.12, Victoria.



What, No Beacons?

BY M. E. COLLETT,* VK2RU

We are fortunate in Australia to have the use of the Radio Ranges on 33.3 and 33.8 Mc., commonly referred to as beacons; they have proved invaluable, now that we have got the six metre enthusiasts using them to determine whether or not the band is open, and in what direction. Observations would indicate that their normal range is in the vicinity of 50 miles, at ground level, increasing upwards to 200 miles with suitable temperature inversion conditions. At this location, 40 miles north of Sydney, no ranges apart from SY are normally heard. All other ranges are heard here at various times apparently via E layer reflection, except in the case of PH which is also heard via F2 layer reflection as well as E layer (double hop). This was instanced on the 17/1/49 when VK6 and VK5 stations were heard and worked on and around the same time that PH and AD were audible on their respective frequencies. Normally DN and PH are heard during the daylight hours via F2 layer, m.u.f. permitting round the equinoxes.

One point of interest which appears to occur at most openings, is the intensity of the signals from the ranges rises to very high levels, prior to the appearance of signals on 50 Mc., decreasing considerably during the opening and rising again after the band closes, which would appear to indicate that the m.u.f. passes down through the frequency spectrum with the increase in ionisation.

During observation of sporadic E via Radio Ranges, contacts, etc., it appears that the "clouds" travel generally in a northerly direction. This can be observed very effectively early in the DX season when they cover a comparatively small area. For instance, BN has been heard for possibly five minutes, it fades out and shortly afterwards TV appears, as it fades out CS comes in and goes out, later on DN is heard. This performance was repeated on a number of occasions in the evenings in October, 1947. Comparing times and maps gave us approximately 300 m.p.h. This compared favorably with observations on AD to DN fade-out to fade-out during the same month.

1948-49 provided the first double hop contacts via E layer in VK. Multiple hop contacts appear to be indicated as evidenced by reported reception of ZSIET by VK3 and VK6 stations, and VK6s and ZLs calling each other.

The next step in 50 Mc. DX in VK is apparently to work South Africa and South America. Days such as the 5/12/48, 18/12/48, and many others subsequently, when all States and ZL made contacts on and around the same time, appear to indicate that the "sporadic E"—for want of a better term—covers very large areas of the southern hemisphere. Multiple hops under these conditions appear very hopeful though, owing to the shortness of the skip, not particularly reliable.

* 85 Mann Street, Gosford, N.S.W.

With the end of the DX season approaching, it may be of interest to hold a post mortem and compare them with the previous year, though lack of activity in 1947-48 tends to mar the comparison. In 1947 and 1948 the Radio Ranges became audible with increasing regularity after the beginning of September in each year. Although during the winter months the ranges did come through and the band also opened mainly following the twenty-seven day cycle.

In 1947 the band opened with a bang on the 9/11/47 and remained open until the 15/11/47. It opened again on the 6/12/47 and closed on 3/1/48. That practically finished the season so far as VK2 was concerned, except for a few isolated contacts during the latter part of January.

In 1948, except for an odd contact, the band did not open properly until the 19/11/48, when it got away to a good start after which it remained open to various States until the big day when VK6 came on the map—5/12/48—so far as VK2 was concerned. After a slight lull it reopened again on the 11/12/48 and it remained so except for an odd day or so up to the time of writing—29/1/49—to all States and New Zealand. During this season ZLs have been worked from VK2 on 31 days. Double-hop contacts and reception reports indicate that the band has been open to VK6 on 12 occasions.

Daily observation has also been undertaken here of the m.u.f. but to date contacts per medium of F2 appear to be somewhat remote. However in March and again in October the m.u.f. did reach 50 Mc. and fading carriers were heard from a northerly direction. It would appear that so far as VK2 is concerned the periods March-April and September-October around 1100 to 1400 hours this coming year would bear watching.

In conclusion the writer would like to thank fellow six metre Hams for their solid co-operation. It was hoped at one stage—records having been kept for two years—to endeavour to line up sporadic E with other natural phenomena as weather, storms, etc., sunspots, conditions on lower frequencies, etc., etc. However conditions this year shattered all previous theories. Contacts were made under all weather conditions from as early as 0800 hours (VK30D, on the 13/12/48) to 2020 hours (VK4BT, on 27/10/48) and Radio Ranges have been recorded at varying strengths at all hours of the day and night. Sunspot numbers varied from 85 on the 5/12/48—a very good day for DX—to 221 on the 19/12/48, which, apart from a very sporadic ZL and Interstate contacts, provided nothing unusual.

As regards the other bands nothing was observed apart from the usual masking effect of sporadic E. Maps and charts on sporadic E observations by the N.P.L. Eng. covering from December 1940 to January 1942 were carefully

studied. These indicated intense activity during summer months, slight peak in mid-winter and fairly regular re-occurrences during other months following 27 day cycle. These charts covered the northern hemisphere and other than the fact that conditions appear to follow very closely the same pattern so far as VK is concerned, nothing further was gleaned. However after analysing daily records of Ranges heard during the last two years some interesting features emerge, particularly so when they are correlated with various openings in VK and elsewhere. It would provide a basis for a further article if sufficient interest warrants it.

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IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

MARCH, 1949

The accompanying charts have been prepared by the Ionospheric Prediction Service of the Commonwealth Observatory. The first set of the series was published in the November, 1948, issue of this magazine, together with an article explaining the nature of the forecasts and how to use them. Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

The Canberra charts refer to the following world zones:—

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3a	N-West America	San Francisco
3a	N-East America	New York
4	Central America	Barbados
5	South Africa	Johannesburg
6	Far East	Manila

The forecasts have actually been prepared for point-to-point circuits between Canberra and the overseas terminals mentioned in the above table. It is, however, to be expected that the charts will provide an approximate indication of ionospheric conditions for all Amateur contacts from South Eastern Australia to the various world zones.

The Perth charts are similar to those based on Canberra, except that the Far East terminal is Shanghai in chart P-Z6. No forecasts are given from Perth to Zones Z2 and Z4 for the current month. Chart P-Z2 would be essentially similar to P-Z1, while chart P-Z4 would be unreliable due to auroral activity in high northern latitudes.

USE OF CHARTS

All that is necessary in using the charts is to select a time (G.M.T.) during which a specified Amateur band frequency is below the maximum usable frequency (m.u.f.) of the F region of the ionosphere but above the lowest useful frequency (l.u.f.) for the desired contact. In two cases, Zones 1 and 3a, it is necessary to consult both the short-route (s.r.) chart and the following long-route (l.r.) chart.

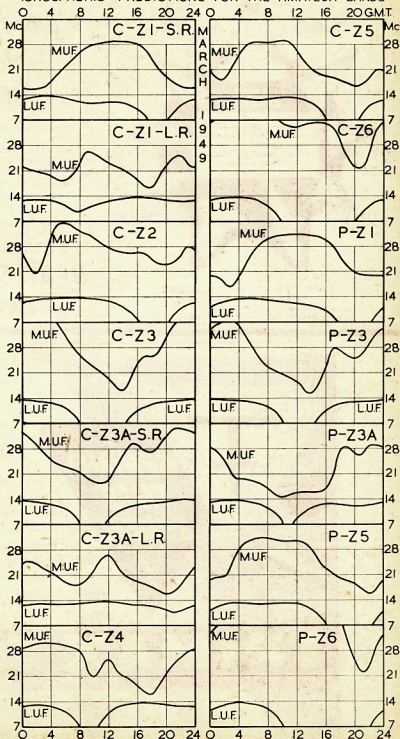
QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Canberra-San Francisco circuit would be most helpful:—

1. Was there a consistent break in the 28 Mc. band from 0700 to 1900 hours G.M.T.?
2. Was the 14 Mc. band open, but noisy around midnight G.M.T.?
3. Were conditions good on the 14 Mc. band from 0800 to 1600 hours or was there a break in the circuit soon after mid-day G.M.T.?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.

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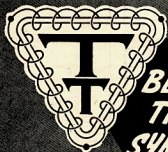
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ENQUIRE FROM YOUR NEAREST DEALER

Royal Australian Air Force Reserve

The Minister for Air (Mr. Drakeford) has said "The value of reservists can be judged from the fact that the R.A.A.F. Wireless Reserve in 1939 permitted the R.A.A.F. to man vitally important circuits without delay and to carry out a development plan which would have been considerably delayed without the able and loyal aid of the members of the Reserve."

Wing Commander J. Reddrop, Director of Telecommunications and Radar, gave a talk at the 1948 Annual Convention of the Wireless Institute of Australia in Melbourne and there has been a press release telling you of the broad plan to include an active radio component in the R.A.A.F. Reserve.

Wing Commander J. Reddrop tried to imagine that he is a possible member of the Radio Section of the Reserve and has asked himself some questions, and as it is his job to organise the Reserve, he was able to supply the answers. Here they are:—

What is the R.A.A.F. Reserve?

The conditions of service in the Royal Australian Air Force Reserve are fully covered in the July 1948 issue of "Amateur Radio," page 14.

The Permanent Air Force Reserve will include a Telecommunications and Radar Section. Reservists in the Telecommunications and Radar Section will be trained to such a standard so that when called up for service, they shall rank and be able to work with members of the Telecommunications and Radar Section of the Permanent Force without further training.

How will Telecommunications & Radar Section of the Reserve be Organised?

Squadron Leader F. C. Bibby has been appointed as Officer in Charge of the Telecommunications and Radar Section of the R.A.A.F. Reserve. Nearly every radio man who has been in the Active Force knows Squadron Leader Fred Bibby. He will be remembered as a most energetic, go-ahead officer and an active and enthusiastic Amateur. He trained a number of presently serving and ex-Signals officers and airmen. He has been out in the field and served with the U.S. Forces under General Akin. He was well thought of by the Americans and was awarded the American Bronze Star Medal for his work with them. He is now at Air Force Headquarters and is responsible for technical development and the frequency and ionospheric organisation.

The Telecommunications and Radar Section of the Reserve will be organised on an Area basis under the control of Air Force Headquarters. In the initial stages, the areas will be as follows:—

Southern—Victoria, South Australia, and Tasmania.
Eastern—New South Wales and Brisbane area.

North Eastern—Northern Queensland.

Western—Western Australia.

North Western—Northern Territory. Southern will be under the control of the Chief Signals Officer, Southern Area Hqrs. (Address: Albert Park Barracks, Melbourne.)

Eastern will be under the control of the Chief Signals Officer, Eastern Area Hqrs. (Address: Albert Park Barracks, Melbourne.)

North Eastern Area will be under the control of the Chief Signals Officer, North Eastern Area Hqrs. (Address: Townsville, Qld.)

Western will be under the control of the Chief Signals Officer, Western Area Hqrs. (Address: Pearce, W.A.)

North Western Area will be under the control of the Chief Signals Officer, Western Area Hqrs. (Address: Darwin, N.T.)

In each area, the Chief Signals Officer will organise the activities of that area in conjunction with a Chief Reservist Officer.

What Training Will I Get?

In the initial stages, the training of Reservists will take the form of revision of what you had learnt and were engaged upon during service in the 1939-45 War. Following this initial stage, Reservists will be brought up to date with current practices in use in the Active Force.

How Will I Be Trained?

Training will be carried out along the following lines:—

(i) Home Training.

(a) For approximately the first 6-9 months, technical data will be supplied to Reservists so that in their spare time they can carry out revision and bring themselves up to the standard they attained whilst members of the Active Force.

(b) Reservists will be sent questionnaires which will require them to do some delving into their text books and notes to find the answers.

(ii) Lectures.

(a) Periodical lectures will be given at central points to all Reservists. These lectures will cover the whole field of the Active Force Telecommunication and Radar equipments, and where possible future developments and equipment on the design board. Reservists will know what is going on at home and abroad.

(iii) Practical Work.

(a) It may be possible to organise competitions, particularly in the field of efficiency in v.h.f. link transmission and reception. This will depend on yourselves and every possible assistance will be given.

(b) Organised group visits to R.A.A.F. units will be arranged to enable Reservists to see communica-

tion and radar equipments, and layouts in aircraft, single side band multi-channel equipment and high powered transmitters in transmitting stations, the operation of tape relay message handling, etc.

(c) Personal visits to R.A.A.F. units will be arranged for Reservists on leave at a Capital city or near a R.A.A.F. unit to enable them to work side by side with officers and airmen of the Active Force.

(d) Special arrangements will be made for Reservists visiting their Area Headquarters capital cities to personally present their ideas for improvements and to discuss their problems with Chief Signals Officers, and when visiting Melbourne with officers at Air Force Headquarters.

(e) Arrangements will be made for Reservists to visit factories in or near their district, or when they are on leave and to visit the Royal Australian Air Force Research and Development Unit and aircraft manufacturers.

(f) Working displays of equipment will probably be arranged in the capital cities or nearby Air Force units so that Reservists can spend as much of their spare time as possible to become experienced in the operation and maintenance of service equipment.

Will I Learn Anything New?

Every effort will be made to advance the technical knowledge of Reservists. The standard required of Reservists will be such that they, when called up for Service, can be absorbed directly into the Telecommunications and Radar Section of the Permanent Air Force.

Reservists will be taught single-side band multi-channel and frequency shift transmissions and all other aspects of radio teletype transmission, v.h.f. and pulse techniques including relaying radar scope pictures, multi-channel links, aircraft instrument landing systems, such as SCS-51 and G.C.A.

Lectures and demonstrations and technical articles will be given on all the above subjects and others as they come to hand.

The merging of signals and radar commenced after the cessation of hostilities. It will be recalled that there were separate signals and radar organisations during the last War. It was realised that there was a very close relation between the functions of the two organisations and it was decided that they should merge and the resultant product "Radio" would cover all aspects of signals and radar.

All ex-Signals personnel will be trained in radar and all radar personnel will be trained in signals.

Is There Any Social Side?

All Reserve members will be afforded the facilities of the appropriate

(Continued on Page 10)

Important Announcement!

Due to Arrive — April

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1949 EDITION

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* 25 Farrell Street, Glenelg, South Aust.

L1—3.5 and 7 Mc.—	14 turns,	3 $\frac{1}{2}$ " diam.
L2—3.5 and 7 Mc.—	3 "	3 $\frac{1}{2}$ " "
L3—14 Mc.—	6 "	2 $\frac{1}{2}$ " "
L4—14 Mc.—	2 "	3" "
L3—27, 28, 50 Mc.—	4 "	3" "
L4—27, 28, 50 Mc.—	2 "	3 $\frac{1}{2}$ " "

All coils are of 14 s.w.g. copper, and wound on air

It has been suggested that key clicks and/or b.c.i. may be a bug-bear on 80 metres; experience has shown that this is not so. The transmitter here is keyed in the centre tap of an 807 buffer stage using the filter shown in the accompanying diagram. With this arrangement it is possible here to plug a highly sensitive receiver into the transmitter power mains outlet and adjust it to maximum sensitivity tuned away from any station, i.e. no a.v.c. voltages, and it is not possible to determine whether or not the transmitter is being keyed.

Frequency Measuring Contest

RULES

1. The Frequency Measuring Contest will be held on the 25th March and 1st April, 1949 (not 18th and 25th March as previously announced), commencing at 8.30 p.m., and will consist of five transmissions in the 7 Mc. band on each of these two nights, making 10 test frequencies in all.

2. The Contest is open to all States of the W.I.A. and Members, Associates, and Student Members are eligible to compete.

3. Prizes will be Orders for purchase of Radio Gear. 1st Prize, £3; 2nd Prize, £2; a Special Prize of £1 for the contestant who, in the opinion of the Judges, has made the best use of home built equipment.

4. Entrants will submit a minimum of four frequencies in the Contest, out of the ten transmitted, as competitors may find difficulty in obtaining accurate measurements on some of the transmissions, due to interference.

5. The approximate frequencies plus or minus 10 Kc. for purposes of location will be:

1. 7010 Kc.	6. 7030 Kc.
2. 7050 "	7. 7070 "
3. 7090 "	8. 7110 "
4. 7130 "	9. 7150 "
5. 7170 "	10. 7190 "

6. **Judging.**—The error in cycles per second of each of the frequencies submitted to be totalled, and the average error in cycles per second determined. The lowest average error to be the winner.

7. The Judges will take the frequencies submitted by a Frequency Measuring Service, independent of the W.I.A., as being correct for this competition.

8. All measurements must be made at the Member's stated address, and the use of private or public institutions, or their equipment is prohibited.

9. Entries must be sent to the W.I.A. Victorian Division, 191 Queen Street, Melbourne, not later than 8th April, 1949, and marked "Frequency Measuring Contest," in the bottom left hand corner of the envelope.

10. The decision of the Judges will be final. Judges are VK3IK (Communications Manager), VK3VZ (Technical Editor), VK3JI (in charge of Frequency Measurements).

PROCEDURE

VK3WI will commence operation on phone at 2020 hours on 7196 Kc. with information on rules, etc., of the competition.

At 2030 hours (E.A.S.T.) VK3WI will change frequency to near the low frequency end of the band, calling on c.w. F.M.C. (Frequency Measuring Contest) No. 1 (three times) de VK3WI (three times), to be repeated for approximately three minutes, then key down for two minutes, followed by F.M.C. No. 1 (three times) de VK3WI (three times) QSY to F.M.C. No. 2.

The above procedure will then be repeated for the next frequency.

SAMPLE ENTRY

Name—Joe Brown.
Address—Marine Pde., Elwood, Vic.
Date—April 4. Call—VK3XYZ.
Frequency Meter Details—Class C Wavemeter.

March 25—	April 1—
No. 1 —	No. 6 —
" 2 7049.42 Kc.	" 7 7069.90 Kc.
" 3 7092.64 Kc.	" 8 —
" 4 —	" 9 7150.55 Kc.
" 5 7170.02 Kc.	" 10 —

I declare that this entry was made on Frequency Measuring Equipment normally used for frequency measurement in my own station.

(Signed) Joe Brown.

DOUBLE CONVERSION RECEIVER DESIGN

(Continued from Page 3)

of one or both. The writer found that the best form of decoupling was a 0.02 uF. mica condenser from the actual last turn of the oscillator tank to the nearest chassis point.

At this stage it might be as well to urge all intending constructors of double superhets to isolate all stages by separate shield cans having double, rather than common, walls. It will pay them in the long run.

Troubles of type (c) are more particular in their nature. They are best explained by quoting in detail a case which occurred during the development of the writer's present receiver. Here are the clues: low i.f. 455 Kc., second osc. 4285.7 Kc., high i.f., the sum of these two, viz., 4740.7 Kc., band being tuned, 20 metres; first oscillator on the low side of the signals, for stability; symptoms of trouble—all the stronger stations on 20 appeared twice on the bandspread dial, but the separation between their dual positions was greater toward each end of the band. For example, Station A, on 14000 Kc. might be heard on 14100 Kc. also; Station B on 14310 Kc. would be heard also on 14400 Kc.; but Station C, on 14200 Kc. would have its other spot much closer, at, say, 14205 Kc.

To save the reader hours of head-scratching which the writer put in before realising the cause of the trouble—yes, the cause was simple—the solution is offered forthwith: The tuning range of the first oscillator was 14000

—4740.7 = 9259.3 Kc. to 14400 — 4740.7 = 9659.3 Kc. This means that the second harmonic of this oscillator tuned from 18518.6 to 19318.6 Kc. Subtracting the high i.f. (4740.7 Kc.) from this range, one obtains 13777.9 to 14577.9 Kc.—conveniently covering the same band that the fundamental of the oscillator was designed to receive.

The effect of closer spacing of the two signals from a given station at the centre (roughly) of the 20 metre band was due to the fact that the change in frequency of the second harmonic was at twice the rate of the fundamental, and the two tuning systems were actually crossing in the centre of the band.

The cure for this trouble was to replace the 4740.7 Kc. i.f. transformers with 3830.7 Kc. transformers—the present frequency. This put the second oscillator on the high side of the high i.f., and necessitated adding $455 \times 2 = 910$ Kc. to the frequency of the first oscillator. The second harmonic of the latter then ceased to beat with Amateur Stations to produce the effect described. The normal selectivity of the front end of the set takes care of the possible troubles of a like nature which might be expected from commercials above the 20 metre band, as none of them are as strong as nearby Amateur Stations.

In all cases, careful design of the oscillators to reduce harmonic content in their outputs is also a help.

It is not the writer's intention to waste "A.R." space by dwelling at length on other phases of the receiver

discussed; almost every other part of the set is conventional, and the same precautions as to rigidity, ventilation, shielding, etc., are taken there as for any other receiver.

Should any reader be interested in further information about this particular receiver, the writer will be happy to provide it on request.

R.A.A.F. RESERVE

(Continued from Page 7)

R.A.A.F. messes, thus giving you the opportunity to get together with other Reservists and Permanent Members for discussions on technical and service matters generally.

How Can I Join?

Now that you have read this, and the conditions of service (set out in "A.R." July 1948, page 14), sit down and ask yourself:—

"Am I prepared to spend some of my own time to advance my knowledge of radio and its applications in the Royal Australian Air Force?"

The answer will most certainly be "Yes." Then write and ask for an enrolment form P/P. 49 to:—

Secretary, Air Board, Victoria Barracks, Melbourne, S.C.1; or

Your nearest recruiting office; or

The Chief Signals Officer of your Area.

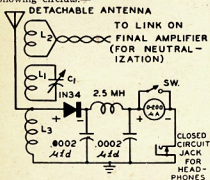
If you have some personal queries you would like to have answered before you make an official application, write a personal letter to S/Ldr. Fred Bibby, c/o D. Tels. & Radar, R.A.A.F. Headquarters, Victoria Barracks, Melbourne, S.C.1.

SUGGESTIONS FOR USE OF GERMANIUM CRYSTALS

By courtesy of J. H. Magrath & Co., of 208 Little Lonsdale Street, Melbourne, we publish herewith two circuits featuring Germanium Crystals.

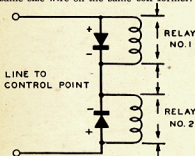
In both circuit diagrams showing the Germanium Crystal, the bar of the crystal symbol represents the cathode. On each Sylvania Germanium Crystal the cathode side is indicated by a green band and the label "Cath."

The B.T.H. British-made equivalent of the 1N34 is equally effective in the following circuits:—



TUNED FIELD STRENGTH METER

While this instrument has been designed specifically as a wide-range field strength meter, it may be employed also as an absorption wavemeter, listening monitor, and neutralisation indicator. L1 and C1 must resonate to the operating frequency of the transmitter under test. L2 consists of a few turns loosely coupled to L1. L3 should be about the same size as L1 and coupled fairly tightly to L1. All coils are wound with the same size wire on the same coil former.



DUAL RELAY CONTROL

Employing crystal diodes, this control system makes it possible to operate either one of two distant relays over a single-pair line. The crystal diodes shunting the relay coils are connected to the line with one polarity, the diode whose anode is positively impressed passes highest current and picks up the relay across which it is connected. When the battery is reversed, the second relay picks up and the first drops out. A higher battery voltage must be employed to pick up the relay shunted by the back-connected diode.

Amateur Radio; March, 1949



No mechanical or electrical device can avert an occasional sea tragedy, but modern electrical instruments have been the means of saving countless lives that, without them, would have been lost. With an automatic transmitter, an abandoned ship can continue to ask for aid: sending out name and position until the final plunge.

On ships that do not keep a continual wireless watch, an auto alarm will receive and record distress signals over long distances by International Code at close and regular frequencies. The proved efficiency of these life-saving electrical instruments is due to the designers and manufacturers—and I.R.C. Resistors play no small part in their make-up. YOU can rely on IRC for ALL your Resistor requirements.

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Series Screen Modulation of Type 3 MK. II

BY B. M. FERGUSON,* VK3FN

Here is a new method of modulating the Type 3 Mark II, which is in a class of its own for general use with this equipment and is ideal for portable operation. The modulator can be made to fit into the 3 1/2" square coil compartment of the spares box.

Fig. 1 shows the audio line-up and method of connection to the transmitter. The circuit cannot be simplified any further and results obtained with it are really astonishing.

It is no exception to other systems of efficiency modulation in that it is critical as to grid drive and plate loading. Fortunately however, these adjustments are ridiculously easy—provided you follow the tuning instructions carefully.

Modification to the Transmitter.—A s.p.d.t. toggle switch is mounted about 1 1/2" to the left of the power inlet cable and two insulated pin-jacks in the intervening space.

J1 is wired to one side of the switch and J2 to the 240 volt lug supplying the screen and oscillator. The screen resistor is removed from the valve pin and connected to the other side of the switch. The switch arm goes to the valve screen pin. **NOTE.**—Do not use shielded wire to carry the audio.

Modification to the Power Supply.—Two pin-jacks are fitted through the ventilation holes just below the a.c. power inlet. One is earthed and the other is wired to the 6 volt pin on the power outlet socket.

Modulator.—The modulator is constructed on a very shallow chassis. Valve pins are bent down flat and the chassis is made just deep enough to clear the wiring from the side of the spares box. It is bolted to the lid and the microphone jack and gain control fitted to the lid. The shaft of the latter is insulated from the lid. Three grommets provide outlet for (1) heater connection to supply, (2) lead to J1, (3) connector to J2, and an earth lead for connection to transmitter box, under corner screw. The latter was found to be desirable.

The modulator slides snugly into the 3 1/2" square coil stowage compartment of the spares box, leaving the balance of the box available for other gear—small speaker, three-band monitor-cum-modulation checker, and the switching assembly with the latter equipment.

The components are quite ordinary, the transformer for instance is from an old neodyne of 1927 vintage! To the critical ear the audio lacks "balance," and, strange as it may seem, it is the absence of some of the "highs" which is responsible. This condition is partly due to the by-passing effect of the screen condenser (0.002 uF). A further contributory factor may be the "heater to cathode" capacity of the 6J5GT. The effect is not bad and you are assured that definitely none but the critical ear

will detect the weakness. It is a minor problem which critical individual users of the system must solve for themselves. Only those requiring to work DX through bad QRM would need to bother. The modulator is run "flat out" in order to fully modulate the carrier.

The features may be listed as under:

1. Modulator power is drawn from the transmitter 240 volt screen and oscillator supply; whilst this imposes an additional 6 Ma. on this particular circuit, the supply as a whole delivers much less current on phone than for c.w. The rectifiers are not endangered.
2. The fully modulated input—with linear output waveform—is twice that previously reported using other systems of modulation.
3. Phone is automatically available for a.c. or battery operation, thus making it ideal for portable operation.
4. No major modifications to the transmitter are necessary. Additions are very simple and easily made. Circuit constants are untouched and metering remains as is!

ADJUSTMENT PROCEDURE

- 1.—Meter in position 6, switch to c.w. and tune up in the usual manner to say one division over half scale (16 divisions).
- 2.—With meter still in same position, switch to phone and input should now drop to about 11 divisions.
- 3.—Now switch meter to position 3 and check grid drive to ensure that it is ample. It should be about 20 divisions. **Two thirds full scale.**
- 4.—Return meter switch to position 6,

increase loading by one or two divisions until it is 12 or 13 divisions.

5.—Meter switch is now put back to position 3 and recheck grid drive and bring up if necessary.

N.B.—The procedure outlined is not an academically correct method for the adjustment of efficiency modulation. However, if the foregoing instructions are faithfully observed, the result will be a fully modulated and perfectly linear output wave form. Also, for the sake of simplicity, all meter readings are given in small divisions of the scale (30 full scale).

No isolating transformer for 6J5GT heater is necessary.

From 3.5 Mc. crystals it is necessary to operate the 6L6 as a doubler on 14 Mc. in order to obtain sufficient grid current. The output will not suffer under these conditions—it is actually much greater because of the increased plate efficiency.

All gear has been built into one case, 15" x 18" x 5 1/2".

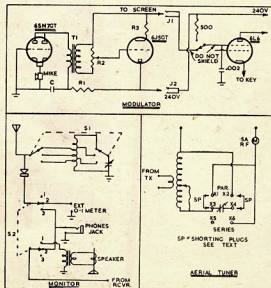
AERIAL TUNING UNIT

The aerial tuning unit is simple, but effective, and provides facility for either parallel or series tuning of aerials. The normal aerial tuning may be used as desired. All coils have been cleaned and rewound with silver wire (except 3.5 Mc. coil L1A). They have all been provided with two turn links and arranged in the following order: L1A 3.5 Mc., L2A 7 Mc., L3A 14 Mc., L4A 28 Mc.

Operation is not intended on 28 Mc. but the unit can be used as an exciter. The links are connected to the centre pins and the corresponding connections on the socket feed through co-axial to two terminals just over the meter.

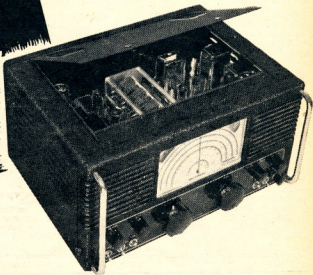
Fig. 1.—Schematic diagram of the modulator, monitor, and speaker (bottom left), and aerial tuning unit (lower right). The series-parallel antenna switch could be a d.p. d.t. knife switch, or as used here for greater compactness, two shorted parallel type line plugs, made up of banana plugs; the sockets being spaced 3/4" apart and are mounted on a micalex base 2 1/2" x 1 1/2".

- J1, J2—Insulated pin-jacks.
- M—P.M.G. insert type carbon microphone.
- T1—5:1 audio transformer.
- C—0.1 uF. 400v. paper condenser.
- R1—5,000 ohms 1 w. carbon.
- R2—0.5 Meg. carbon pot.
- S1—1,000 ohm 1 watt.
- S2—pole 3 pos. wafers.
- S3—pole 3 pos. wafers.
- Pos. 1 Receiver to speaker.
- " 2 Receiver to phones, and mon. to meter.
- " 3 Monitor to phones.



* No. 2 Second Court, McGowan Ave., West Preston, N.18, Victoria.

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CIRCUIT. Two high sensitivity RF stages, frequency changer with separate oscillator for maximum efficiency and freedom from drift.

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- **S.A.:** GERARD & GOODMAN LTD., 192-196 Rundle Street, Adelaide.
- **TAS.:** W. & G. GENDERS PTY. LTD., 53 Cameron St., Launceston.

Australian Factory Representative : R. H. CUNNINGHAM & CO. 420 William-st., MELB.

This F.M. And Television Business

At the present time f.m. and television are receiving considerable publicity in the Press, and therefore some comments from W0SGK, Kansas, U.S.A., in a letter to VE3FO, gives us a pointer on what we can expect in the future, when these services get under way.

He deals only with the broadcast listener's reaction to f.m., but nevertheless his comments are most interesting to the Amateur, as they affect us vitally. To quote—

"F.M. is by no means the big thing that you people seem to think it is. F.M. is somewhat better in town, where interference is higher, but the trouble is that f.m. receivers are expensive to maintain, to buy, and the big majority of people would much rather spend a small sum for the cheap b.c.l. sets, a.c./d.c. circuits, almost no sensitivity, less if possible selectivity, high distortion, and tune in the local broadcast station, go about their business, paying very little attention to the programme being transmitted. They don't notice or care for the better quality, by no means enough to pay the much higher price. F.M. range is short, 30 miles or so, which cuts into the market considerably. The people living away from the

town are more interested in radio, therefore the lions' share is for a.m. sets, small and cheap."

W0SGK has some interesting comments on television interference and gives some idea of what is to come. To quote—

"The front end of a television receiver is as wide open as a farmer's barnyard gate, the r.f. amplifier must respond to a channel some five megacycles wide with equal response, in the 45-90 Mc. region. Naturally the response outside the 5 Mc. band is plenty, at 2 times down, it will pick up over some 25 Mc. The i.f., also 5 Mc. broad, is located between 20 and 28 Mc., and has plenty of skirt response. The video channel is 5 Mc. wide, from zero to 5 Mc., and naturally to cut the selling price, shielding is almost non-existent, filtering likewise, also decoupling. The usual procedure is to sell sets as far out as possible, the fringe of the signal area takes in the largest number of customers naturally, and with the receiver having such a potential for trouble, trouble is the usual occurrence."

"An Amateur living some three doors down from such a set owner, running perhaps 200 watts on 80 metres, blots

out his picture, so he shifts to 40, instead of the 3.5 Mc. interference to the video amplifier, his third harmonic at 21 Mc., again blots the picture; he moves up to 14 Mc. or 28 Mc. and harmonics enter the front end; he goes to 6 metres, and adjacent channel interference shows up—you can't win.

"He shuts down entirely, and the set owner gets a fine herringbone pattern, and he finds that the interference is coming from every station on the air with fundamental frequency in video range, harmonics in the i.f. range, or from a band on either side of the r.f. channel, with a signal up to maybe 25% of the desired signal voltage. The best hope for progress at the moment seems to be to move the whole thing up into the 400-700 Mc. region—to get as far away from the lower spectrum as possible, which means throwing out the whole thing and starting from scratch."

W0SGK's views are perhaps on the black side, but it might be a blessing in disguise that we are behind in these latest developments, because, if we are wise, we can profit by their mistakes, and when television comes, as it most certainly will, we can start on frequencies which will eliminate, or at least reduce, the troubles which apparently beset it now.



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and which is adjudged to have contributed most to the advance of the Amateur communications and to the international understanding among Amateurs. All member-societies will ballot for societies nominated.

New member-societies are C.R.A.G. (Guatemala), H.K.A.R.T.S. (Hong Kong), P.A.R.A. (Philippines), R.C.P.T. (Peru). Proposed new member: L.P.R.A. (Pheasant).

In accordance with two motions at the last Convention, we have placed motions for membership-society ballot with the I.A.R.U. and the proposal to adopt a uniform system of QSL cards and the adoption universally of the Services Alphabet used during the War.

REMEMBRANCE DAY TROPHY

A majority of the Divisions have agreed to the proposed design and work is now in hand to complete the trophy to be presented to the N.S.W. Division as winner of the 1948 Contest. As the names of the Amateurs who lost their lives during the recent war are to be inscribed on the Trophy, we list hereunder the final list we have prepared from advice received. We would appreciate information from members of the various Divisions and the details shown below. Please notify the Federal Secretary at the earliest.

- VK3AJL—G. C. Curle R.A.A.F.
 - VZ2HQ—F. W. S. Easton R.A.A.F.
 - VK2T—C. D. Roberts R.A.A.F.
 - VZ2VJ—V. J. E. Jarvis R.A.A.F.
 - VZ2YK—W. Abbott R.A.A.F.
 - VZ2YJ—J. D. Brown R.A.A.F.
 - VK3HN—J. McCandlish A.M.F.
 - VZ3IE—J. E. Mann R.A.N.
 - VK3NG—N. E. Guster R.A.A.F.
 - VZ3O—M. D. D. R.A.A.F.
 - VK3OW—G. L. Tompkins R.A.A.F.
 - VK3PL—F. J. Coltrush R.A.A.F.
 - VZ3R—R. P. Yeates R.A.A.F.
 - VK3SP—J. W. Jones A.M.F.
 - VK3U—J. A. Burrage R.A.A.F.
 - VZ3G—J. A. Burrage R.A.A.F.
 - VK4DR—D. A. Laws A.M.F.
 - VZ4PS—F. J. Starr R.A.A.F.
 - VK4FR—R. Allen R.A.A.F.
 - VZ4S—J. E. Mann R.A.A.F.
 - VK4M—B. James R.A.A.F.
 - VK4HW—J. G. Phillips A.M.F.
 - VZ4G—H. G. Phillips R.A.N.
 - VK4GJ—E. E. Goddard R.A.A.F.
 - VK4KS—R. S. Anderson A.M.F.
 - VZ4PS—R. P. Yeates R.A.A.F.
- Does anyone have information on VK3GO, T. Stephens? Any additions to this list would be welcomed—this is the last chance.

W.A.P. AWARD

The "Worked All Pacific" (W.A.P.) Award has been instituted by the N.Z.A.R.T. to encourage interest in the Pacific.

1. The W.A.P. Award for confirmed contacts with thirty (30) or more countries in the Pacific area is awarded to the holder of the call sign.
2. Confirmations must be forwarded direct to N.Z.A.R.T. HQ, P.O. Box 489, Wellington, New Zealand.
3. Confirmations must be accompanied by a list of calling countries to aid in checking.
4. All contacts must be made with Amateur Stations working in the authorized Amateur bands or with other stations licensed to work Amateurs.
5. Contacts with stations in the same area or stations—
- 5a. Contacts with ships, anchored or otherwise, and aircraft, cannot be allowed.
6. All stations must be contacted from the same call sign, where such area exist, or from the same country in cases where there are no call areas. One exception is allowed to this rule: where a station is awarded the W.A.P. award in the event of one country to another, all contacts must be made from within a radius of 150 miles from the original location.

7. Contacts may be made over any period of years, dating post war (i.e. since November, 1945), provided only that all contacts be made under the provisions of the W.A.P. award. In the event of queries; contacts may have been under different call letters in the same area or country if the intention was to obtain the award.
8. All confirmations must be submitted exactly as received from the station worked. Any altered or forged confirmations will, if accepted, result in the disqualification of the applicant.
9. Operating Ethics—Fair play and good sportsmanship in operating are required of all Amateurs working for the W.A.P. award. In the event of any specific objections relative to continued poor operating ethics, an individual may be disqualified from the W.A.P. by action of the N.Z.A.R.T. Awards Committee.

10. A minimum readability report of 3 shall be recorded on each confirmation.

11. A minimum minimum tone report of T8 is required for all c.w. confirmations.

12. Decisions of the N.Z.A.R.T. Awards Committee regarding interpretation of the rules as here printed, or later amended; shall be final.

13. All applications must be forwarded to the N.Z.A.R.T. by the end of the month following for the return of the confirmations must be forwarded with the application.

14. All certificates will be consecutively numbered and interpreted. Roll showing all those issued will be kept by the Secretary of the N.Z.A.R.T.

Note—The Pacific Area, known also as the "Continents" of Oceania, includes contacts with the following prefixes according to Zones—

- Zone 27—DU, DK, KG, KG6.
- Zone 28—CR10, PK1 to 7, VK9, VR4, VS1, VS2, VS3, VS4, VS5, VS6, VS7.
- Zone 29—VK8, VK9, ZC3, ZC3.
- Zone 30—VK1, VK2, VK3, VK4, VK5, VK7, VK8, VK9, ZL1, ZL2, ZL3, ZL4, ZL5, ZL6, ZL7, ZL8, ZL9, ZL10, ZL11, ZL12, ZL13, ZL14, ZL15, ZL16, ZL17, ZL18, ZL19, ZL20, ZL21, ZL22, ZL23, ZL24, ZL25, ZL26, ZL27, ZL28, ZL29, ZL30, ZL31, ZL32, ZL33, ZL34, ZL35, ZL36, ZL37, ZL38, ZL39, ZL40, ZL41, ZL42, ZL43, ZL44, ZL45, ZL46, ZL47, ZL48, ZL49, ZL50, ZL51, ZL52, ZL53, ZL54, ZL55, ZL56, ZL57, ZL58, ZL59, ZL60, ZL61, ZL62, ZL63, ZL64, ZL65, ZL66, ZL67, ZL68, ZL69, ZL70, ZL71, ZL72, ZL73, ZL74, ZL75, ZL76, ZL77, ZL78, ZL79, ZL80, ZL81, ZL82, ZL83, ZL84, ZL85, ZL86, ZL87, ZL88, ZL89, ZL90, ZL91, ZL92, ZL93, ZL94, ZL95, ZL96, ZL97, ZL98, ZL99, ZL100.
- Zone 31—F81, F82, F83, F84, F85, F86, F87, F88, F89, F90, F91, F92, F93, F94, F95, F96, F97, F98, F99, F100.

FEDERAL QSL BUREAU

RAY JONES VK3RJ, MANAGER

The following interesting information on the French expedition to Adelle Land comes from the Secretary of the French Division of the I.R.U. Hams are with the expedition, namely M. Marret and M. Harders, who will operate c.w. and phone under the call sign F9AXX. One rig is a BC610 and they possess a 100 watt transmitter. They work with power of 20 or 40 watts. They expect to get on the air about 1st April but, owing to the present position of the ice, they may be restricted. However they expect to be on from 0800 to 1100 G.M.T. daily operating in the 3.5, 3.7, 3.9, 4.1, 4.3, 4.5, 4.7, 4.9, 5.1, 5.3, 5.5, 5.7, 5.9, 6.1, 6.3, 6.5, 6.7, 6.9, 7.1, 7.3, 7.5, 7.7, 7.9, 8.1, 8.3, 8.5, 8.7, 8.9, 9.1, 9.3, 9.5, 9.7, 9.9, 10.1, 10.3, 10.5, 10.7, 10.9, 11.1, 11.3, 11.5, 11.7, 11.9, 12.1, 12.3, 12.5, 12.7, 12.9, 13.1, 13.3, 13.5, 13.7, 13.9, 14.1, 14.3, 14.5, 14.7, 14.9, 15.1, 15.3, 15.5, 15.7, 15.9, 16.1, 16.3, 16.5, 16.7, 16.9, 17.1, 17.3, 17.5, 17.7, 17.9, 18.1, 18.3, 18.5, 18.7, 18.9, 19.1, 19.3, 19.5, 19.7, 19.9, 20.1, 20.3, 20.5, 20.7, 20.9, 21.1, 21.3, 21.5, 21.7, 21.9, 22.1, 22.3, 22.5, 22.7, 22.9, 23.1, 23.3, 23.5, 23.7, 23.9, 24.1, 24.3, 24.5, 24.7, 24.9, 25.1, 25.3, 25.5, 25.7, 25.9, 26.1, 26.3, 26.5, 26.7, 26.9, 27.1, 27.3, 27.5, 27.7, 27.9, 28.1, 28.3, 28.5, 28.7, 28.9, 29.1, 29.3, 29.5, 29.7, 29.9, 30.1, 30.3, 30.5, 30.7, 30.9, 31.1, 31.3, 31.5, 31.7, 31.9, 32.1, 32.3, 32.5, 32.7, 32.9, 33.1, 33.3, 33.5, 33.7, 33.9, 34.1, 34.3, 34.5, 34.7, 34.9, 35.1, 35.3, 35.5, 35.7, 35.9, 36.1, 36.3, 36.5, 36.7, 36.9, 37.1, 37.3, 37.5, 37.7, 37.9, 38.1, 38.3, 38.5, 38.7, 38.9, 39.1, 39.3, 39.5, 39.7, 39.9, 40.1, 40.3, 40.5, 40.7, 40.9, 41.1, 41.3, 41.5, 41.7, 41.9, 42.1, 42.3, 42.5, 42.7, 42.9, 43.1, 43.3, 43.5, 43.7, 43.9, 44.1, 44.3, 44.5, 44.7, 44.9, 45.1, 45.3, 45.5, 45.7, 45.9, 46.1, 46.3, 46.5, 46.7, 46.9, 47.1, 47.3, 47.5, 47.7, 47.9, 48.1, 48.3, 48.5, 48.7, 48.9, 49.1, 49.3, 49.5, 49.7, 49.9, 50.1, 50.3, 50.5, 50.7, 50.9, 51.1, 51.3, 51.5, 51.7, 51.9, 52.1, 52.3, 52.5, 52.7, 52.9, 53.1, 53.3, 53.5, 53.7, 53.9, 54.1, 54.3, 54.5, 54.7, 54.9, 55.1, 55.3, 55.5, 55.7, 55.9, 56.1, 56.3, 56.5, 56.7, 56.9, 57.1, 57.3, 57.5, 57.7, 57.9, 58.1, 58.3, 58.5, 58.7, 58.9, 59.1, 59.3, 59.5, 59.7, 59.9, 60.1, 60.3, 60.5, 60.7, 60.9, 61.1, 61.3, 61.5, 61.7, 61.9, 62.1, 62.3, 62.5, 62.7, 62.9, 63.1, 63.3, 63.5, 63.7, 63.9, 64.1, 64.3, 64.5, 64.7, 64.9, 65.1, 65.3, 65.5, 65.7, 65.9, 66.1, 66.3, 66.5, 66.7, 66.9, 67.1, 67.3, 67.5, 67.7, 67.9, 68.1, 68.3, 68.5, 68.7, 68.9, 69.1, 69.3, 69.5, 69.7, 69.9, 70.1, 70.3, 70.5, 70.7, 70.9, 71.1, 71.3, 71.5, 71.7, 71.9, 72.1, 72.3, 72.5, 72.7, 72.9, 73.1, 73.3, 73.5, 73.7, 73.9, 74.1, 74.3, 74.5, 74.7, 74.9, 75.1, 75.3, 75.5, 75.7, 75.9, 76.1, 76.3, 76.5, 76.7, 76.9, 77.1, 77.3, 77.5, 77.7, 77.9, 78.1, 78.3, 78.5, 78.7, 78.9, 79.1, 79.3, 79.5, 79.7, 79.9, 80.1, 80.3, 80.5, 80.7, 80.9, 81.1, 81.3, 81.5, 81.7, 81.9, 82.1, 82.3, 82.5, 82.7, 82.9, 83.1, 83.3, 83.5, 83.7, 83.9, 84.1, 84.3, 84.5, 84.7, 84.9, 85.1, 85.3, 85.5, 85.7, 85.9, 86.1, 86.3, 86.5, 86.7, 86.9, 87.1, 87.3, 87.5, 87.7, 87.9, 88.1, 88.3, 88.5, 88.7, 88.9, 89.1, 89.3, 89.5, 89.7, 89.9, 90.1, 90.3, 90.5, 90.7, 90.9, 91.1, 91.3, 91.5, 91.7, 91.9, 92.1, 92.3, 92.5, 92.7, 92.9, 93.1, 93.3, 93.5, 93.7, 93.9, 94.1, 94.3, 94.5, 94.7, 94.9, 95.1, 95.3, 95.5, 95.7, 95.9, 96.1, 96.3, 96.5, 96.7, 96.9, 97.1, 97.3, 97.5, 97.7, 97.9, 98.1, 98.3, 98.5, 98.7, 98.9, 99.1, 99.3, 99.5, 99.7, 99.9, 100.1, 100.3, 100.5, 100.7, 100.9, 101.1, 101.3, 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The 50 Mc. transmitter is already in operation and ZLA and VKZ have been working with it, using 15 watts input. Bill 2YU is now active on the 100 watts to a pair of 807s and is putting out a very nice signal. Alex 2ABU also works plenty of DX with a similar transmitter on 20. Jim 2ZB is still busy re-building, time we heard something from you Jim. Fred 2ABC says he will stick to the v.h.f. bands for an occasional trip to 10 for a bit of DX. Fred has also been busy to just on 144 Mc. soon. Leo 2AC is pretty ready to come, but manages to get on occasionally. Berry 2ABH has had a similar transmitter on 20. Jim 2ZB has not seen him since his return so cannot report on his visit.

EASTERN SUBURBS ZONE

Not much activity in this zone this month although a few of the 20 metre gear are still active. 2YIP heard inquiring about the merits of the Clapp core. Harold 2AAB was on the 20 metre phone and gave again. 2ABZ active on 20 metre phone, also asking questions about the Clapp. 2YV has been having trouble with a commercial v.l.o. Frank nearly made some bad friends with it. 2QD mostly on 40 and 20 c.w., Ray is not taking any risks with his neighbours. 2AG also keen c.w. man, and always welcome to the zone. He can record any old speed and send with either set. 2QV has been having trouble with his 40 metre phone, all cleared up now and doing great guns. 2CE has built car radio and very pleased with result; hope you can soon get the car OM.

2FJ has made a new start and aims at 100 watts on air. (The boys in the area wish to convey to you Jack their deepest sympathy in your recent sad bereavement.) 2WR heard on rare occasions, but busy shifting gear to new QTH. 2DV never heard, but seems to be solid if not finished. 2CF working on band-switching receiver and transmitter. 2EZ heard working his share of DX on 20. 2ABU active again after quite a spell. Still waiting to hear 2TN, 2OV, 2KH, 2YA and 2AIG, these boys seem to have given the game away. 2AGJ still active on 20 and 40 phone and c.w. Most of them seem to be along, and your scrib on you or any other chaps does, your scrib finds it very hard to get sufficient dope.

DX NOTES BY VK2ACX

Conditions generally are still far from good, but a few rare DX stations have put in an appearance on 14 Mc.

The most important DX news during the past four or five weeks has been the opening of 3.5 Mc. for both European and North American contacts. VK2R, RQ, QL and EO have been getting a good share of contacts.

On 7 Mc. I'm told that there are plenty of the Pacific Islands represented. One in particular being KC6EA, ex-W5WFA/Truk.

On 14 Mc. Bill VK2HEZ brings his total to 137 countries with PK6XZ (to Celebes). Bill has been mostly on 3.5 Mc. and 7 Mc. and on the former band has got across to W.

Norris VK2VN is still off the air owing to the housing problem, but he tells me it won't be long now.

Mac VK2ZH, after having built all band equipment in the last few mornings knocking 'em over. From the 5th January to the 30th February he has worked 73 countries, which shows that the bug has bitten him in the right place. F. Mac and Mac have set up VK2ZEN in now 39 zones and approximately 120 countries.

Gordon VK2DI also FMSAD, SV5UN, YK1AB and 100 for 141 countries. He has about 160 of them confirmed which is very good when one considers how hard it is to get cards returns these days.

Frank VK2QL adds FFSFG bringing him to 149 countries. All Frank's work has been on c.w. and most on QTH which is about five sets of h.t. overhead (33,000, 66,000 and that sort of stuff), including the Western District electric train services alongside! F. Frank.

Here at 2ACX it's now 175 with EA6AI and FFSFG. The latter one is located at GA6I in the French Sudan. OX3MG promises me an air mail QSL to someone on DXA, troubles!!

From VK52S to VK2QL we can learn that VK1FE (ex-VK4FE) and VK1VU (ex-VK3VU) both on Heard Island are on 14 Mc. c.w. looking for VK contacts.

Well fellows, this is my last DX note for some months. Frank VK2QL will keep the notes going, but I plan to drop in to him at No. 18 Bridge Road, Homebush, N.S.W., or ring him at 2ACX, any evening or week-ends with any DX dope you may have. I do hope my notes have been of interest to some of you. Cheerio and good hunting, 73 de VK2ACX.

NEWCASTLE ZONE

2ANG active on 10 and 20 with new modulator. 2AGD chasing the few extra for DX C.C. 2AFS' now back at home QTH, requires seven for DX C.C. 2AHA been on holidays, got some good fish and now fishing for DX. 2QA has his main working on 20, 2AMM's voice has improved with the new crystal mike. 2CL heard often with nice quality phone. 2BZ been holidaying, congrats on a 50 Mc. v.l.o. and a new car.

2PQ in the new shack, nice DX with QRP, ask him about the baby sister. 2NX has a nice signal on 40, 20 and 10. 2JA has a Clapp. 2CN broke the ice at last!! using driver's licence. 2ZC heard occasionally, was visited by the ZO, a nice time had. 2FP has 101 up on 10 metre phone and will build a new shack off.

COALFIELDS AND LAKES

2EK mostly on 50 Mc., worked VK2, 3, 5, 7 with 807 doubling, a two tube blooper, and three elements. 2KF also working 50, waiting for some gear from Sydney and guess it is then the big rebuild. 2YO will be heard. 2ZJ on 10 and talking of 50 Mc. 2VU mainly on 10 and 50 Mc., the beam on the latter band to go up higher. 2AB, a stickler for 40, may be talked into 50 Mc. by 2RU who recently spent a week with him. 2YJ working 10 interested in 144. 2SK heard on 40. 2PZ building a new receiver. 2ADT mainly on 20. 2E repeated his contact with VK6, plans a new beam on 50 Mc.

2VL spent two months on 50 with indifferent results, a new feed line to antenna improved things. 2BE, 2ADT and 2YL visited Sydney first week-end in February. Visited ten shacks; their thanks to 2RU and 2YL. 2AB and 2YJ were on 20. 2BZ, 2HL, 2WJ, 2ABC, 2VW and 2YL, and 2XU, all helped to make the trip a big success. 2RU has worked all States on 10 and 20. 2XU has 2AEZ building receiver for 40 Mc., how is 20 DX. 2EM 2AMU re-building 14 Mc. gear. 2KR getting started on 50 Mc.

WESTERN ZONE

2ACU has all his new gear working but QRL with hot weather. 2XE has a Clapp in front of his ATRCQ, appears to work f.h. 2WH also working the above. Keeping the 2ATD for the DX bands. 2BE, 2JC and 2XO have returned from fishing holiday, used portable gear with good results. 2PW again working, also the usual break-downs. 2NS has completed his high power rig band-switched turret, 815 in final. 2IE has abandoned radio and taken up singing. 2BT still chasing DX on 20 metres.

2AMR has push button transmitters on 10, 20, 40 and 50 with a separate outfit on 6 plus a mobile 6 outfit. 2QA very slowly working some gear together for 6. 2LY won the 50 Mc. section of the V.H.F. Contest, nice work Stan. 2LZ did well in all sections of the Contest, working 144 and 288; made an appearance on 80 recently. 2BZ sent away for a DX C.C., working W on 40, 2EF got his first class ticket and will now have more time on the air. 2PF lost his beam and tower, but won't erect again, as expects a QTH change to Sydney.

SOUTH COAST AND TABLELANDS

2UK supplies news of a fire fighting communication system set up in Wollongong district, organised by the local club (2AMW). 2XW transmitter P.P. 807s was built by old-timer (ex-WK2C) and sold. 2XW has good equipment and work well. 2TPW is off the air re-building, an influx of visitors over the holidays kept him quiet. 2BZ has 144 Mc. gear going and is working out for Sydney stations, been bitten with the phone bug after years of c.w. 2WV re-building, active on 20. 2VH working 20 phone and c.w.

2ANW, a new one, should be on 40 soon with QRP. 2ON at Dapto changing 20 DX on c.w., no phone at the moment. 2AOZ left and now living in Sydney. 2ATX keeps Woodmoor on the map with 40 phone. 2TIK has taken up recording and has learnt that the replaying of Ham transmissions is the A.O.C.P. and there were some loud grans when the news of f.m. phase and pulse going in the next examination.

2PI QRL but re-build coming up, new panels on transmitter and receiver and new coil switching device. 2ALS and 2JO heard from Coanahie, the signals sounded just the same as they do from here. 2YAS. 2AUK again active on 20, the 2YL has been in hospital, still taking things badly; doing a spot of batching. 2ALS not heard, but has been servicing 144 Mc. receiver. 2FN and 2EG called in here recently on trips through the latter met up with 2EZ in Sydney, enquired said. It was nice to meet up with all the Sydney gang, so 73 until the country convention.

VICTORIA

The lecture by Mr. Waste, of the Forestry Commission, which was to have been held on 15th February, is now to take place on 15th March at the I.R.E. meeting for that month. The title of the lecture is to be "Improving the Propagation Characteristics of the Windom or Single Wire Line." Remember the I.R.E. has invited any W.I.A. member to attend this fine lecture on 25th March, instead of 15th February as announced previously.

The Annual General Meeting of this Division will be called for the date co-inciding with the general meeting for 6th April, 1949. Keep this date in mind for attention to election of new officers for Council. Look around now and fill in your form when it comes along for office-bearer for the coming 12 months. Due notice of this meeting will be sent to all financial members.

Mr. Ken McTaggart VK2XW gave a very interesting lecture on his tour overseas. Many general interest items were brought forward by Ken, main

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also of which are as follows. Temperature inversion and sporadic E made conditions on the higher frequency bands most unsatisfactory in England and the Continent. Ken simply presented his Australian A.O.C.P. Licence to the authorities and was automatically granted a G licence. R.S.G.R. meetings were held at the local Tavern in Cambridge and the log fires and refreshments made these meetings very informal.

It was surprising to see such a wide range of equipment on display at the Exhibition. A visit to the Continent only meant keeping a weather eye out for beams, as Ken found to his pleasure. "QST" came in handy for making contacts in America—simply looking up the appropriate notes and consulting the American Call Book in conjunction with the phone book. American Hams thus contacted proved very sociable and it was a good time visiting shacks and inspecting aerials. 60 to 90 foot self-supporting masts are quite common in America and the use of the telephone at the top to assist in tuning adjustments. A Convention was visited at Boston at which some 5,000 Hams were present, yes 5,000. Great donated by manufacturers making what interest when the draw is made of the lottery. Factory built apparatus has produced a dearth of home constructors.

Ken also visited A.R.R.L. Headquarters and was very interested in the activity and the equipment in evidence. All items of equipment described in "QST" are kept on hand for about three years as a spare in case of emergency, but by visitors. The wide range of power supplies and test equipment takes up quite a lot of room. The station is remotely controlled from Headquarters and it is very impressive to see all rig (most of each on the communication bands) with 1 k.w. input being keyed together in their news broadcasts. Disposals appear to be made at very low prices, but are very reasonably priced and mostly in good condition.

Television is now getting good work, even a co-ax link from East to West side is used for relay work. F.M. is used in England and F.M. in America where car ignition noise is a problem. The same commission as in England. F.M. is used quite a lot in the States as a means of reducing interference on the long wave bands. All the interest in "QST" is tested on the air for at least a month and it takes some three months from completion of article until it actually appears in print.

STANDARD FREQUENCY TRANSMISSION

This transmission took place on 26th January and the results of the several transmissions were measured by the P.M.G. The actual frequencies were: 7060 Kc transmission was 7060 Kc plus 5 cycles.
7010 " " " " " " 50 "
7020 " " " " " " 80 "
7030 " " " " " " 80 "
7040 " " " " " " 80 "
7050 " " " " " " 100 "
7060 " " " " " " 60 "

SECOND ANNUAL STATE CONVENTION

The business side of the Convention was opened by the President of the Victorian Division who, in welcoming representatives of each of the six zones in Victoria, expressed the desire that this present Convention would herald great things for the Institute in the near future. After confirmation of the minutes of the last Convention, items of general business were accepted and discussion of the Agenda continued until the lunch break, when 32 members partook of welcome refreshments. The afternoon session was most interesting and the proceedings went so well that a photographer had to get three "pieces" before he was satisfied. Owing to shortage of time, all the items of general business could not be dealt with, however the Agenda item produced some interesting points and the Federal Convention, to be held in Melbourne at Easter this year, will reap the benefit.

Amongst those present were: JBM, 3WE, 30A, 30Z, 38S, 3XU, 3HP, 3RE, 3UT, 3GZ, 3WG, 3AG, 3XJ, 3YU, 3RR, 3WZ, 3GS, 3HP, 3YS, 3GW, 3AKR, 3CH, 3ACE, 3LW, 3IR, 3ACN, 3ACN, 3TJ, 3PW, 3ABR, 3XN, 3DF, 3AKZ, 30N, 300, 3JL, 3RP, 3TU, 3SX, 3XJ, 3UN, 3KN, 30J, 3IE, 3AL, 3RL, 3ZA, 3TF, 3XO, 3ACN, 3RI, 3AFM, 3ML, 3WQ, and Jack Groves, with Mrs. Cross the only lady. 2ALW and 6FL were present from Interstate.

Saturday evening provided the chance for the Country and City Members to visit a number of the metropolitan shacks, after which a Barbecue at Harry Kinross's (3KN) was voted a huge success and very much appreciated by all. Ninety-five people were counted after which time the gate-keeper lost count for several reasons, one being the beam.

Sunday at Yarra Bend National Park started off with the boys competing for DX with their rigs and meeting quite a few more who were unable to

attend on Saturday. Len Moseur (31N) provided the aeroplane to keep the kiddies interested and several types of aerials to keep the boys interested, while he went ahead and won the competition. After lunch you could hardly see the ground for the huge crowd, and the local kiosk reported the biggest business they had for years if ever. The p.a. was provided by Bert Seetrieve 3BI and he is to be congratulated on its flexibility and excellent carrying power. Eric Wardle 300 drew things out of hats and all odd corners to keep grown-ups and kiddies amused for a time, and a competition for the best piece of home-made apparatus provided a prize for Bill Wells 2AWY. The Marborough Laundry was represented by Bill Holland 5XC and others whose attire drew the attention of the "Age" photographer, whilst our worthy President Bob Cunningham 3MJ provided the answers for the wire recorder from 3AW.

The weather was very good and must have been specially arranged for us by the Committee organising the Convention, as they seemed to have everything else looked after. This committee comprised 3ML ground, Jack Groves organising, 3AKB catering and accommodation, 30K transport, 31N novelty events, and radio contests, etc. 3KX barbeque and aircraft, and 3WQ business of Convention and publicity. They are to be congratulated for their effort and it is a sample of their work, the next State Convention should be world famous.

Mrs. Cross, our Administrative Secretary, also deserves special mention as, due to her efforts and the members of the ladies' committee who had several meetings, the country members' wives spent Saturday afternoon together, being entertained by the city members' wives.

Look forward to the day of our next State Convention and make it a must as soon as you know the date.

EMERGENCY COMMUNICATIONS—NORTH

EASTERN DIVISION

At 1630 hours on 27th January, VK3HP called "QZ Emergency," when he attended a fire raging in the Chiltern area, and was immediately in contact with VK3KR. A station was required in Wangarratta so that communications could be sent to the Forestry Commission. VK3YV was enlisted. When the Postmaster at Benalla was told that a circuit existed for clearing urgent fire traffic he passed on the information that a serious fire was also located at Glenrowan, this was passed on to 3HP.

At 1715 hours 3HP advised 3KR that he was shifting location to a spot 2 1/2 miles away from the Yackandandah turn off, when contact was again established at 1820 hours, the operating spot was located at the Golden Bar Mine where conditions were very poor, due to thick smoke which limited

visibility to approximately 200 yards. At this time 3YV contacted 3HP direct and Henry (3HP) requested that 3YV pass on a message to the Forestry Commission at Beechworth asking if they could pinpoint the head of the fire from their lookout tower. This information was supplied to 3HP and at 1850 hours the fire was reported as headed off and that the operating position was now to be changed to Lancashire Road.

From 1930 hours on, communication between 3KR and 3HP was severely interrupted by Amateur C.W. and phonetic stations operating on 3HP's frequency. However 3KR managed to convey 3HP in communication with 3YV at 2100 hours, when Henry reported the fire was under control and that he was closing down.

VICTORIAN DIVISION LADIES' COMMITTEE

A musical afternoon has been arranged by the Ladies' Committee to be held at the Rooms, 191 Queen Street, on Friday, 18th March, at 2 p.m. If you are able to come along and bring a friend, please ring Mrs. Cross at FJ 6997 by 16th March. You are also reminded of the meeting called for Wednesday, 30th March, at 2 p.m. to make plans for the entertainment of visitors during the Federal Convention at Easter.

SOUTH WESTERN ZONE

An interesting thing happened when Phil 3APU/3WV contacted Type 2 Mark II portable from the train bound for Melbourne: he was in contact with 3ALG and 3ABR, and when passing Laverton 3AND was QSOed, good work Phil. Andy 3BE still puts out fine signal on 40, and 3AKI has new modulator, giving very good work. Heard that 3YA and 3GR with XLYs went to see 3RE, 3II and 3AGD, had a good trip but got no dope. Have not heard 3II on of late, must be cooling off in duck pond Leigh. Vern 8YE has new antenna up wire for 14 Mc, and Murray 3AMP comes on when 3RD is wire recorder. 3MOV Gordon gave a song on New Year's eve, was told he has a fine voice. 3HW has scrapped his receiver for a new 5X25 as he cannot hear enough DX. Heard other day that Bob 3GR has unfolded his 14 Mc. folded dipole with better results, but Bob can be found working the boys on 7 Mc. just the same. Had a yarn to JARE other night on 40, but Ed has trouble with power leaks; has a vertical 7 Mc. aerial up with better results.

Jack 3JA still finds time to work some DX on 20 and 10, when not working on farm. Norm 3RQ has not been on much of late so I have been told and the same goes for Ted 3PS, but Frank 3ZU has added more contacts with new antenna. 3GQ Bruce is busy with mobile rig when not fixing up radios. Hear that Geelong gang has new Ham, 3AAT

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Geelong Amateur Radio Club.—At the first meeting of the above club for 1949 members used the call sign VK3ATL. Mr. Alf Foster SAJF brought along to this meeting a V.H.F. transmitter in which he had just completed repairs. At the next meeting Mr. Dick Heighway SAJRF gave a lecture on "Radio and A.C. Frequencies" and had his Type 3 Mark II, a Class C Wavemeter, and an Oscilloscope. Mr. Alf Foster SAJF was elected Secretary, the President of the Club, welcomed Bill Kincaid SAJW, John McConnell 2SW, and Zack Jack SAJG who were visitors to the Club. At the last meeting Mr. Alf Foster SAJF gave a talk on "The Amateur and the Army" during the war and used the blackboard to illustrate his talk which took up quite a bit of the evening. Inviting members to the club should get in touch with the Secretary, Mr. Alf Foster SAJF, 101 Milburn St., Geelong.

EASTERN ZONE

The Zone was pleased to hear 3ABO of Monmouth, N.J. on 6th February. He has a 7193 as a modulated oscillator on 144 Mc., but he has not been heard yet. Keep at it, Max, your turn will come. 3LV expects to move from Trafalgar, South shortly, we hope you stay in the Zone Len; he has been working 14 Mc. c.w. on 8 watts. 3ACU is active on 6. 3CI was out on the 144 Mc. Field Day, but did not have many QSOs, as his r.f. stage on the receiver was not working; however, he did work 3ANW who was portable at Mt. Domain, Huzang, with the antenna coupled to the mixer.

CENTRAL WESTERN ZONE

For those who don't hear the W.I.A. broadcasts and missed it in the last month's magazine, the zone hook-up has been changed back to its original time of 10 a.m. on 7120 Kc. on the second Sunday in the month.

NORTH EASTERN ZONE

SHIP, OKR, and XYU handled messages during the recent bushfire at Chiltern. Associate Ken Skopier, when not working or chasing VJ6, is chief of staff on Alton's radio net. He has been running SARG, using call sign VLQZG, as base. Four friends attended to date. SARG/Portable has been operating from Mangalore Ammunition Dump, using a 700 watt rig. The rig was built by Alton and put up a mast and vee beam, then received transfer to Lancefield. Dick is the third Ham to leave this zone since this writer took over the notes. JUIK, who has been active in the area, has left. JUIK's VK6 friends asked him when the wedding was to be. Alon denies the rumours, but his friends tell him it is time he did something about it anyway. JUIK has a good sense of humour. He has a lot on his neck yet. SAGW putting up antennae and improving the rig; Gus heard a pirate using his call, Jack Ansett, an old timer who used to call in the morning on the radio game. He built one of the stations for fire brigade use, and made a beautiful box. OKR, after what he has done, will be getting a lot more work. The following are some records, will not be written mentioning in these notes.

QUEENSLAND

We cannot leave this section of the notes without congratulating the operator of 4WI who has at last added a daughter to his family.

ZONE NEWS

That is all for this month, 73 and don't forget to send your Zone Manager news of your activity.

SOUTH AUSTRALIA

The resignation of Dr. Ross Adey (5AJ) from the Council was accepted with regret, although we all realise that Ross is very QRL, and his projected trip overseas finally decided him. It's been a pleasure

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we working with you Ross, although you don't seem to have much respect for my physique.

It was announced at the meeting that more than the required number of nominations had been received for the Council and therefore a ballot would be necessary. This is good news and augurs well for the future of the VK5 Division. It is not right that the same handful of members should year after year be placed in office simply because of the apathy of the rest. Here's hoping for a real fighting vote, and may the best men win. Nobody will be allowed to bring any eggs or tomatoes inside the hall as one or two of the candidates will offer a bigger target than others, and what's more I have only one pair of pants!

The question of larger meeting rooms also came up again and the President explained that it was extremely difficult to secure any sort of rooms for the present one. Some "good fairy" then rose to his feet and said that he could put a suitable room at the disposal of the Division and he was cordially invited to meet the Secretary, Treasurer and President after the meeting, so here's hoping.

It is remarkable how the boys roll up to the meetings these days, and whenever any of the old-timers happen to stroll in, the first thing they allude to is the difference between the present day attendees and the days when a dozen and a half was a full house. Don't forget however that this state of affairs has not come about by accident, but by good and careful management, and a good deal of tolerance, because there's no doubt about it, we have our share of "dilpots." Yes, I know that I am one of them.

The question of the ionospheric prediction charts being further published in "A.R.R." came up for general discussion at the meeting and some were for, and some against. It was finally decided to suggest that they be deleted, the deciding factor being the fact that the predictions do not arrive until too late to be of any use to VK5. It seemed to me that many of those who were in a position to use the predictions were loth to rise to their

feet and support them. This is a pity when one considers that the privilege of free speech looks so much fighting for.

The proposed rules for the V.H.F. W.A.S. Certificate did not meet with too good a reception at the meeting also. Papua and Norfolk Island, etc., did not seem quite in order, and as for divorcing the Northern Territory from VK5, well that takes some understanding, especially as the P.M.G.'s Of course we do not see fit to allot a separate prefix.

5KR (Vic. to you) will take unto himself a partner on 14 February and by the time you read these remarks will have decided if it is to be "skeds or diabs." Be firm Vic, the first six cracks with the rolling pin are hardest. Anyway, both sides for the 14th night, the night to you and your charming YF (that should get me a piece of wedding cake to sleep on), and also don't forget Gordon (X1U) will be sending you a series of Qs on his organ in the Church, so you've got to be lonely. I tried to arrange an arch of crossed 80s at the Church but couldn't get any starters.

We hate to boast, but VK5 has the two outstanding six metre records, Clarrie Castles (5KL) and Bob Manuel (5GT). Only modesty prohibits us from saying that if there are any more coming up we will probably have them. Not bad for a "lucky" State, eh?

As punctual as a clock that sits on the shack table of 8BZ, along comes the latest budget of doings from the South East way. 5JA is very busy on V.H.F. and beams and everybody was amazed to see how fast a windmill had grown in John's backyard (must have watered it well). With a 10 metre beam on top and before these notes are read a 6 and a 2 metre up there also, he sure will get results. 5MS had his modulation tranny go up in smoke the other day (too much a.c. these days Stewart). By the way how is the VK5 5CM group doing? 5CM is doing well, but it is still slowly re-building, but as he has been acting manager at

the local watt factory, there is very little time for any re-building. Do you give away any samples from the factory Claude? 5TW has been having a quiet but happy time on 10 metre c.w. "I dips are lid to you Tom."

5FD, one of the newcomers, has been working on 20 and 40, but is handicapped to the extent that he is living in Mt. Gambier and his gear is out at his parents' house in the country. A little bird has whispered to me that he these notes are read John will be installed in a larger house with his gear alongside him and a.c. installed (I repeat, how do they do it?). 5KU ("Erg" to you), the other newcomer, is on 40 c.w. and is using a reception set No. 4 as a receiver. 5GJ should hang his head in shame, not one contact for the month, but as he looks around and sees a new shack, a nice tidy garden, rows of vegetables which will bring in more money for gear, well probably that odd contact won't be missed. Has the new YF become resigned to sharing you with Amateur Radio Club?

If you fellows smell a fairly high odor down there, it will probably be Wick Bay's pipe (5MW) as he hitch-hikes his way to Melbourne through Mt. Gambier. If any of you can manage to bury the said pipe you will be doing the boys here a good turn as it has to be smelt to be believed. At the last general meeting I arranged with the Editor of "Splat" to forward me a copy of that publication and he was more than willing, but somebody has fallen down on the job. You whistie and I will point.

A good many of the gang in VK5 have been through a lot of mud at me because I was a member of the January 1949 Jury in the Criminal Court at Adelaide. They called me the "hanging Judge," "a good man and true," "Your Honor," and it was even suggested that I had "been called to the bar." Anyway, on my first day at the courts whilst all the preliminaries were getting under way, a diminutive looking type walked into the court, and I was amazed to see that such a desperate looking person was not under guard. Taking a

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APPRECIATION

P.O. Box 127, Geraldton, W.A.

Editor "A.R.", Sir,

Allow me to pass on my thanks and appreciation to VK6PS for his bright and entertaining VK3 notes.

The Hams of whom he writes are, naturally, strangers to me, but the way he writes makes his contribution the second thing I look for each month, the first obviously being the VK6 Divisional Notes.

VK3 is fortunate in having as its Divisional Sub-Editor, a man with a natural flair for Ham journalism which puts him, in my estimation, "way up among some of the world's best as found in the pages of British and American Journals."

This letter implies no disregard of the sterling efforts of Dave (WVY) in reporting W.A. activities but is simply intended as a compliment to someone who seems to have been born with a gift.

—R. H. ATKINSON, VK6WZ.

Princes Highway, Harfield, Vic.

Editor, "A.R.", Sir,

Could I be given a little space to give my heartfelt thanks to all those Hams and friends who turned up to my shack on 29th January to erect my tower and beam.

As you know I am now partly inviolated with heart trouble, and the real Ham Spirit once more rose to the occasion and did what was impossible for me to do. All did a great job and I thank each and every one.

—CHAS. R. WHITEHEAD, VK3BH.

WARNING

Larga Bay, Sth. Aust.

Editor "A.R.", Sir,

I had brought to me today a portion of a letter, written by some person overseas, which had sent the addressee seeking the call sign ("figures and letters" said the writer) of the owner of a "Ham set" in the vicinity who might be able to arrange for some members of the family to gather at his station and hold conversation "through my beam" station—you can talk for hours."

As the party approaching me was in ignorance regarding the provisions of Para. 33 of the Handbook, I pointed out, at length, what would be the result if any licensee started doing this.

Possibly a general reminder to all licensed Amateurs to remember the first five lines of Para. 33 would not go amiss and, in an endeavour to do a kindness, permit themselves (and others) by permitting their equipment to be used as a public telephone channel—even if "you can talk for hours" (presumably free gratis and for nothing).

I did not enlighten the enquirer that, being a c.w. exponent, I could not possibly oblige her; but I don't think any further approach will be made in this regard to others to seek a free telephone channel.

—T. LAIDLER, VK3TL.

REPLY TO "OLD HOMBER"

Dear "Old Homber",

I hesitate to cross pens with such a critical, and I am sure, cantankerous old gentleman. I say old, because I feel that reactions such as yours towards our hobby, could only be acquired after a lifetime of knocks and you yourself without a vestige of a sense of humour.

You are possibly a very old timer literally toothed on an A.R.R.L. Handbook, you may have bitten deep into the back pages but missed the first few, missed that small saga of Amateur Radio, missed the spirit of the Code, and missed the world tolerance between every line.

"The King's English" was written to be mutilated, mutilated in Amateur Radio by those whose education was not as complete as yours "Old Homber." A few "winks" or mutilations will do a lot less harm to our hobby, than a gripping, intolerant attitude such as yours.

Education is a curse to many, a credit to some, but any Amateur who has obtained his ticket lacking

in it, should be admired. We know the great "GP" listen to our broadcasts but don't forget that the "GP" also suffer from the lack of erudition pro rata.

You can't be very active or you would notice the term "Hammer" is fast falling out of favour. Perhaps you didn't see that little par in "QST" that started it on its way.

YXK FR NCE NOTES ON ABS I WL HPE TT UK IDEAS GPT CHINGD SN OR UL WL HVE US SPFLZNG BCNU—CUNJE. I really like it, a bit of a change from the mundane conversations of every day.

I hope "Old Homber" in the interests of Amateur Radio and possibly you yourself, that you take off the school tie, cravatise yourself and see if you can't see the brighter side. This game of ours is not nearly as bad as you will have us believe. 73 CUL YRS.

—"CANALINE."

[The Editor reserves the right in all cases to publish or withhold any unsigned correspondence.]

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As reported elsewhere activity on this band during the past two months has been very great. We are pleased to announce that this station's new host of W.A.S. on 50 Mc. Members who have achieved the honour are 4HD, 4ES, 4BT, 4RY, 4HR.

4CU reports that on Thursday, 31st February, at 8.10 p.m. a carrier was heard on 50.3 Mc. From 8.15 p.m. to 8.45 p.m. orchestral music was heard and after two minutes the announcement was heard. The speech, however, could not be copied. The station had a carrier of 87 and transmission was very good quality. Charlie's beam was pointed due west of Clifton. Time. Can anyone help in identifying this station?

During the period 29th November to 31st January 4CU reports working the following stations:—2BW, 2GU, 3OP, 3IM, 3LV, 3ARQ, 3CT, 3AKM, 3DL, 3HT, 3KN, 3RH, 3CR, 3RR, 3SO, 3MN, 3ZM, 3NO, 3TS, 3ZL, 3BW, 3ZD, 3YJ, 3KO, 4HR, 4EK, 4RT, 4BT, 4AW, 5FQ, 5CU, 5RP, 5RV, 5WH, 5KG, 5WL, 5ME, 5GI, 5QR; 1AB, 7HD, 7AJ, 7XL—in all one hundred and eight QSOs with forty-two different stations.

During January 4HD has worked the following 2YJ, 3IM, 3CR, 3VD, 3OD, 3DQ, 3BD, 3ZL, 3AKN, 3YJ, 3FG, 3ADT, 3GN, 3AD, 3VL, 4HR, 4BT, 4RT, 4JP, 4AW; 5OU, 5KG, 5GO, 5CO, 5QZ, 5RP, 5RV, 5WH, 5KG, and 6HM also heard 7AD and 7HL; 2LIDE, 2LHIT, and heard 2LIMM and 2LQOS.

We are sorry that we cannot give more details concerning activities of other VK4s active on this band as no further details have been supplied to the writer of these notes.

WESTERN AUSTRALIA

The 50 Mc. band was very active again during January and these observations were made from Perth. At the end of the first week in the month it was noticed that the radio ranges on various Eastern States airfields again became audible at increasing strength as the days passed. Up to the 16th January, Perth was experiencing electric power restrictions, power being supplied to consumers by the hour. It is possible that because of this, openings of the band may have been missed during the periods when power was cut off, although 4LW's power when he did transmit was considerable. However, on the evening of 17th, at 1830 hours Perth time, 2LY, 2RU, and 2LW were worked by 6FC; the band closing at about 1445 GFC now using three element wide-spread rotary beam. These signals suffered from severe QSB. Varying from 80 to zero, violently.

On the 26th 6LW worked 5QR. 6LW reported that although several VKs were heard in Perth, conditions were so bad that only 5QR was worked. He said that 5QR had worked 6EC and heard 5DW, both country Amateurs.

On the 27th at 1000 hours Perth time 6FC worked 4BT, followed by 4HD, then 4ES and then 2ADT. During the middle of QSO with 2ADT, the band closed down, the time then had advanced to 11.15. During the whole of the 31 hours, signals were much more solid, some QSB, but never fell to zero, while peaking 88 at times, average about 84 to 86. Undoubtedly, P3 propagation. I believe this was first VK4/VK5 contact on 50 Mc.

Nothing more until the 28th at 0930 when 6FC worked 5QR again, but only QZ 84. QSB very bad. Two minutes later the band had gone out. (6LW reported that on the night of the 27th, VKs were heard in Perth, and one worked by 6GS portable Perth. Bruce Rook is reported to have heard VK3 working 2L some time.) Later, on the morning of the 28th, at 1012, 6FC heard 4HR on c.w. RST 559, not readable on phone—QBT. This QSO was a real battle, finally making it on c.w. both ways (RST 549), after battling for over an hour.

At 1109 6FC worked 4RY also c.w. RST 449. This also was a battle at first but improved later, c.w. RST 429 when the band had gone out. The down. This seems to be the final closing of the band, for nothing has been heard in Perth since. I have no details from country Amateurs of their experiences during this period. GIM of Kalbar later told me on 40 metres that on 6 he had made 151 contacts with 41 different stations to date (25/1/46). No news from 6VC. G. Albany or 6WV. Bruce Rook, but I'll warrant, they did equally as well as we did in Perth. Perth seems a difficult place for 6 metre DX somehow.

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ITEM 52. TYPE No. AFS

Primary Z: 10000 ohms pp. Plus 34 db
Secondary Z: 8 ohms VC
Insertion Loss 0.5 db
Primary L: 125 Hys. Leakage L: 22 mH
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s.
Base: 4 x 4 1/4 x 4 1/4" H Wgt. 7 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 53. TYPE No. AF10

Primary Z: 10000 ohms pp. Plus 34 db
Secondary Z: 500 and 125 ohms
Insertion Loss 0.4 db
Primary L: 125 Hys. Leakage L: 17 mH
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s.
Base: 4 x 4 1/4 x 4 1/4" H Wgt. 7 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 54. TYPE No. AF15

Primary Z: 10000 ohms pp. Plus 34 db
Secondary Z: 15 and 3 1/2 ohms VC
Insertion Loss 0.3 db
Primary L: 125 Hys. Leakage L: 19 mH
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s.
Base: 4 x 4 1/4 x 4 1/4" H Wgt. 7 lbs.
Mntg: VII "S" is 1 1/2"

The "AW" range of output transformers listed in this section comprises units designed specifically for high fidelity audio systems. Their features are multiple interleaving of coils to confine leakage reactance within the limits permissible consistent with the upper frequency range covered; adequate primary open circuit inductances to maintain low frequency amplification; and comparatively large core structure of high quality transformer steel to reduce iron distortion by the use of low flux inductances at the MAXIMUM R.M.S. signal frequency voltages incurred.

OCL values are measured at 5v AC at 50 cycles per second, representing an extremely low signal level. The actual inductance at — 3 db from rated output would be many times that given.

ITEM 55. TYPE No. AW1

Primary Z: 5000 ohms pp. Plus 33 db
Secondary Z: 8 ohms or 2 ohms
Insertion Loss 0.44 db
Primary L: 80 Hys. Leakage L: 85 mH
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s.
Base: 4 x 4 x 4 1/4" H Wgt. 6 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 56. TYPE No. AW2

Primary Z: 5000 ohms pp. Plus 33 db
Secondary Z: 500 ohms and 125 ohms
Insertion Loss 0.38 db
Primary L: 85 Hys. Leakage L: 70 mH
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s.
Base: 4 x 4 x 4 1/4" H Wgt. 6 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 57. TYPE No. AW3

Primary Z: 3000 ohms pp. Plus 34 db
Secondary Z: 8 ohms or 2 ohms
Insertion Loss 0.5 db
Primary L: 40 Hys. Leakage L: 55 mH
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s.
Base: 4 x 4 x 4 1/4" H Wgt. 6 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 58. TYPE No. AW4

Primary Z: 3000 ohms pp. Plus 34 db
Secondary Z: 500 ohms and 125 ohms
Insertion Loss 0.5 db
Primary L: 40 Hys. Leakage L: 50 mH
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s.
Base: 4 x 4 x 4 1/4" H Wgt. 6 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 59. TYPE No. AW5

Primary Z: 12,500 ohms pp. Plus 39 db
Secondary Z: 500 ohms and 125 ohms
Insertion Loss 0.9 db
Primary L: 100 Hys. Leakage L: 150 mH
Freq. Resp: +/- 1 db 30 cps to 15 Kc/s.
Base: 4 x 4 1/2 x 4" H Wgt. 9 lbs.
Mntg: VII "S" is 2 1/2"

ITEM 60. TYPE No. AW6

Primary Z: 12,000 ohms pp. Plus 33 db
Secondary Z: 500 ohms and 125 ohms
Insertion Loss 0.6 db
Primary L: 100 Hys. Leakage L: 140 mH
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s.
Base: 4 x 4 x 4 1/4" H Wgt. 6 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 61. TYPE No. AW7

Primary Z: 12,000 ohms pp. Plus 33 db
Secondary Z: 8 ohms or 2 ohms
Insertion Loss 0.6 db
Primary L: 100 Hys. Leakage L: 140 mH
Freq. Resp: +/- 1 db 30 cps to 10 Kc/s.
Base: 4 x 4 x 4 1/4" H Wgt. 6 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 62. TYPE No. AW8

Primary Z: 1500 ohms pp. Plus 37 db
Secondary Z: 500 ohms and 125 ohms
Insertion Loss 0.6 db
Primary L: 35 Hys. Leakage L: 28 mH
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s.
Base: 4 x 4 1/2 x 4 1/4" H Wgt. 9 lbs.
Mntg: VII "S" is 2 1/2"

ITEM 63. TYPE No. AW9

Primary Z: 6000 ohms pp. Plus 37 db
Secondary Z: 500 ohms and 125 ohms
Insertion Loss 0.6 db
Primary L: 75 Hys. Leakage L: 85 mH
Freq. Resp: +/- 1 db 30 cps to 10 Kc/s.
Base: 4 x 4 1/4 x 4 1/4" H Wgt. 7 lbs.
Mntg: VII "S" is 1 1/2"

ITEM 64. TYPE No. AW10

Primary Z: 10,000 ohms pp. Plus 39 db
Secondary Z: 500 ohms and 125 ohms
Insertion Loss 0.9 db
Primary L: 80 Hys. Leakage L: 100 mH
Freq. Resp: +/- 1 db 30 cps to 10 Kc/s.
Base: 4 x 4 1/2 x 4 1/4" H Wgt. 9 lbs.
Mntg: VII "S" is 2 1/2"

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